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NICKEL IN OCTOBER 2003

In October, reported domestic nickel consumption, on a daily average basis, was 10% greater than that of September, according to the U.S. Geological Survey. Average daily nickel consumption of cathode, pellets, briquets, and ferronickel for stainless steel was 39.3 metric tons per day (t/d)—3% greater than the 38.2 t/d (revised) for September, but 46% less than the 72.1 t/d (revised) for October 2002. Consumption of elemental nickel to make superalloys and corrosion-resistant nickel-base alloys increased by 10% and 30%, respectively, from September levels, on a daily average basis. Sales to plating companies averaged 30.5 t/d, about 17% greater than the revised September sales figure of 26.0 t/d.

On October 31, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,150 metric tons (t)—3% less than the 1,180 t (revised) on September 30 and 23% less than the 1,500 t (revised) reported for yearend 2002. Stocks in London Metal Exchange (LME) warehouses worldwide totaled 32,052 t —6% less than the 34,176 t on September 30. Preliminary data collected by the International Nickel Study Group indicated that, at the end of September, world nickel producers (excluding those in Austria, China, The Former Yugoslav Republic of Macedonia, Serbia, and the Ural area of Russia) had approximately 99,100 t of nickel in primary products in stock, of which 72,200 t, or 73%, was Class I material. Class I materials are refined products with a nickel content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, oxide sinter, and East Asian utility nickel—products with a nickel content of less than 99%.

Percentages reported in the above paragraphs may not be verifiable owing to concealment of individual company proprietary data and late reporting of data.

The United States imported 99,500 t of primary nickel in the first 9 months of 2003, 3% more than the 96,600 t for the corresponding period of 2002. Class I materials accounted for 86% of total primary imports received during the first 9 months of 2003. Trade data for October 2003 will appear in a subsequent report.

Spain—Rio Narcea expands nickel reserves and resources

Rio Narcea accelerates development work at Aguablanca.—In October 2003, Rio Narcea Gold Mines, Ltd. began developing the Aguablanca nickel-copper deposit in southwestern Spain. The magmatic sulfide deposit occurs in a gabbro-norite intrusive complex along the northern contact of the Santa Olalla granodiorite complex. The dominant ore minerals are chalcopyrite ($CuFeS_2$), pentlandite [$(Fe,Ni)_9S_8$], and pyrrhotite ($Fe_{1-x}S$). The ore also contains economically recoverable quantities of palladium and other platinum-group elements (PGE). The upper part of the deposit is brecciated and forms oxidized gossans where it outcrops at the surface. The Aguablanca Mine initially will be an open pit operation and will have an on-site crusher and concentrator. The open pit would eventually reach a depth of 250 meters (m) and have a life of about 10.5 years. The proposed flotation plant would treat 1.5 million metric tons (Mt) of ore per year. Aguablanca is expected to have an annual production averaging approximately 8,200 t of nickel and 5,000 t of copper in concentrate. As of December 31, 2002, Aguablanca had 13.6 Mt of proven reserves averaging 0.66% nickel, 0.47% copper, and 0.48 grams per ton (g/t) PGE. In addition, the deposit had 2.1 Mt of probable reserves averaging 0.62% nickel, 0.44% copper, and 0.45 g/t PGE (Rio Narcea Mines, Ltd., 2002, p. 2).

In August 2003, Rio Narcea awarded the engineering contract for construction of the project to Fluor Corporation. Fluor was to be paid €17.1 million (approximately $19.9 million) plus Australian $21.8 million (approximately $14.9 million). The mining contract for the open pit mine was awarded to the PEAL Group, an established Spanish contractor experienced in large-scale earth-moving projects. Project construction has advanced rapidly with most surface excavations for the plant site completed. The mining complex is scheduled to be commissioned in mid-2004 (Rio Narcea, 2003a§[1]).

Rio Narcea also was planning to exploit the deposit's deeper resources within the next 5 years. In December 2003, Rio Narcea's board of directors gave the go-ahead to the first phase of the underground part of the mining project. Engineers will

[1]References that include a section mark (§) are found in the Internet References Cited section.

initially drive a ramp to gain access to a mineralized zone below the bottom of the planned open pit. Construction of the ramp and the associated development work was expected to cost $5 million. The ramp and initial development work would take about 18 months to complete. The underground work would enable the company to complete infill drilling and help confirm the existence of additional zones of high-grade mineralization believed to have been displaced by faulting (Rio Narcea, 2003b§).

Construction was being financed by a $47 million loan facility from Investec Bank (UK) Ltd. and Macquarie Bank Ltd. At the end of September 2003, approximately $13 million had been spent on project development and construction. Because of the strengthening of the euro against the dollar, capital expenditures for Aguablanca have been revised upward to $70 million from the feasibility study estimate of $62.5 million. Rio Narcea has obtained subsidies from Spanish governmental agencies for development of Aguablanca (Rio Narcea, 2003c§).

Exploration in the Ossa Morena Belt.—Rio Narcea has been focusing its recent exploration efforts on four targets in the Ossa Morena Belt. Ten holes have been drilled at the Tejadillas target, about 65 kilometers (km) west of Aguablanca. The ten holes, totaling 3,306 meters (m), defined two horizons of ultramafic rocks containing sub-economic, disseminated magmatic sulfide mineralization. One of the main mineralized zones reportedly has an average thickness of 15 m with a proven continuity of at least 300 m along strike. Hole Tej-4 contained the best high-grade intercept at a downhole depth of 170 m with 0.2 m of core averaging 1.4% nickel, 0.2% copper, and 0.068% cobalt. Current drilling efforts at Tejadillas have focused on less than one third of the surface expression of the Tejadillas intrusive. Several strong electromagnetic conductors and magnetic anomalies have been identified south of the current target area (Rio Narcea, 2003d§).

The company has drilled three other exploration targets in the Ossa Morena Belt. The three targets were identified by nickel anomalies in soils of mafic and ultramafic rocks. Some of the soil anomalies were associated with electromagnetic, magnetic and/or induced polarization anomalies. Downhole electromagnetic surveys are being conducted at Argallon, 60 km northeast of Aguablanca; at Olivensa, 110 km northwest of Aguablanca; and at Elvas on the company's Campo Maior property in southern Portugal (Rio Narcea, 2003d§).

Reference Cited

Rio Narcea Gold Mines, Ltd., 2003, Annual report—2002: Rio Narcea Gold Mines, Ltd., 52 p.

Internet References Cited

Rio Narcea Gold Mines, Ltd., 2003a (November 17), Mining contract awarded at Aguablanca Ni-Cu project, accessed January 5, 2004, at URL http://www.rionarcea.com.

Rio Narcea Gold Mines, Ltd., 2003b (December 5), Rio Narcea announces commencement of underground development at the Aguablanca nickel project, accessed January 5, 2004, at URL http://www.rionarcea.com.

Rio Narcea Gold Mines Ltd., 2003c (September 11), Rio Narcea completes Cdn$45 million financing, accessed January 5, 2004, at URL http://www.rionarcea.com.

Rio Narcea Gold Mines, Ltd., 2003d (November 18), Third quarter 2003 financial results, accessed January 5, 2004, at URL http://www.rionarcea.com.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE[1]

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
2002:					
October	5,150	750	62	5,960	58,700
November	4,640	632	58	5,330	64,000
December	4,550	505	53	5,110	69,100
January-December	57,800	9,080	2,270	69,100	XX
2003:					
January	4,820	529	75	5,420	5,420
February	4,410	390	23	4,830	10,300 r
March	4,350 r	653	42	5,040 r	15,300 r
April	4,790	400	46	5,230	20,500 r
May	4,330	524	25 r	4,870 r	25,400 r
June	4,130	498 r	43	4,670 r	30,100 r
July	3,700	667 r	24	4,390 r	34,500 r
August	3,800 r	628	28	4,380 r	38,800 r
September	3,520 r	274	29	3,820 r	42,700 r
October:					
Steel:					
Stainless and heat resisting	864	354	W	1,220	16,100
Alloy (excludes stainless)	W	--	--	W	1,990
Superalloys	932	--	W	932	8,470
Copper-nickel alloys	W	--	--	W	W
Electric, magnetic, and expansion alloys	11	--	--	11	111
Other nickel & nickel alloys	W	--	--	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	946	--	--	946	8,780
Chemical and chemical uses	W	--	--	W	W
Other uses	1,310	--	33	1,340	11,600
Total reported	4,060 [2]	354	33	4,450	47,100
Total all companies (calc)[3]	XX	XX	XX	6,850	72,500
2003: January-October	41,800	4,920	368	47,100	XX
2002: January-October	48,600	7,940	2,160	58,700	XX

[r]Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Of consumption, 3,440 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

[3]Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (65.01%) to apparent primary consumption for 2001.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS, BY FORM AND USE [1, 2]

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
2002:				
October	1,790	140	76	2,010
November	1,610	93	84	1,790
December	1,500	60	81	1,640
2003:				
January	1,360 r	100	44	1,500 r
February	1,430 r	54	34	1,520 r
March	1,230 r	148	43	1,420 r
April	1,440 r	49	47	1,540 r
May	1,430 r	58	41	1,530 r
June	1,750 r	101	71	1,920 r
July	1,360 r	76	56	1,490 r
August	1,600 r	111	49	1,760 r
September	1,180 r	101	49	1,330 r
October:				
Steel (stainless, heat resisting and alloy)	361	(3)	(3)	361
Nonferrous alloys[4]	772	(3)	(3)	772
Foundry (cast irons)	(3)	--	--	(3)
Chemical (catalysts, ceramics, plating salt, etc.) and unspecified uses	15	114	56	185
Total	1,150	114	56	1,320

rRevised. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Stocks held by companies that consume nickel in more than one end-use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustments.

[3]Included in the "Chemical and unspecified uses" category.

[4]Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE[1]

(Metric tons, nickel content)

	Consumption			Stocks		
Period	Ferrous scrap[2]	Nonferrous scrap[3]	Total scrap	Ferrous scrap[2]	Nonferrous scrap[3]	Total scrap
2002:						
October	5,170	660	5,830	3,540	104	3,640
November	4,590	506	5,100	3,240	104	3,350
December	3,870	641	4,510	3,210	101	3,310
January-December	61,600	8,070	69,700	XX	XX	XX
2003:						
January	4,710	645	5,350	3,420	107	3,530
February	4,030	758	4,790	3,080	96	3,180
March	6,430	649	7,080	2,930	105	3,040
April	5,310	674	5,980	3,210	93	3,310
May	4,920	773	5,700	3,150	102	3,250
June	4,040	645	4,680	3,100	109	3,210
July	4,340	682	5,020	3,370	105	3,480
August	4,780 r	755 r	5,530 r	3,310	115	3,430
September	3,810	739 r	4,550 r	3,290	108	3,400
October	5,360	751	6,110	3,110	101	3,210
2003: January-October	47,700	7,070	54,800	XX	XX	XX
2002: January-October	53,200	6,930	60,100	XX	XX	XX

rRevised. XX Not applicable.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

[3]Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY[1]

(Metric tons, nickel content)[2]

Period and country of origin	Cathodes pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total[3]	Total year to date[4]	Wrought nickel
2002:										
September	13,000	566	1,570	2	160	641	194	16,200	103,000	85
October	5,140	609	1,010	11	230	564	183	7,740	111,000	106
November	6,560	684	991	27	181	627	222	9,300	120,000	51
December	6,970	512	750	16	225	530	312	9,310	130,000	70
January-December	97,200	6,970	12,300	1,230	3,030	6,080	2,860	130,000	XX	878
2003:										
January	5,950	928	605	10	341	322	223	8,380	8,380	55
February	7,060	954	916	8	323	424	269	9,960	18,300	115
March	17,400	1,130	1,310	34	420	476	309	21,100	39,400	93
April	7,770	678	1,700	--	496	533	321	11,500	50,900	64
May	6,160	933	1,530	7	412	461	378	9,880	60,800	37
June	10,800	368	692	(5)	226	408	327	12,800	73,600	41
July	6,240	294	1,840	11	352	420	312	9,470	83,000	49
August	7,420	762	913	(5)	477	475	544	10,600	93,600	62
September:										
Australia	737	80	--	--	--	--	--	817	9,870	--
Brazil	120	--	--	--	--	8	--	128	877	--
Canada	1,810	97	--	--	227	560	--	2,690	31,600	1
Colombia	--	--	389	--	--	--	--	389	2,310	--
Dominican Republic	--	--	691	--	--	1	--	692	6,470	--
Finland	640	560	--	--	--	--	115	1,320	5,850	--
France	109	--	--	--	27	--	24	160	2,570	1
Germany	(5)	7	--	--	65	--	22	94	829	23
Japan	--	3	(5)	--	--	--	(5)	3	497	10
Mexico	--	--	--	--	5	165	1	171	1,500	--
New Caledonia	--	--	100	--	--	--	--	100	1,570	--
Norway	1,970	--	--	--	--	--	--	1,970	12,400	--
Russia	4,390	185	--	--	--	--	--	4,570	25,900	--
South Africa	60	--	--	--	--	--	--	60	178	--
Sweden	--	1	--	--	--	--	--	1	57	--
United Kingdom	144	88	--	--	187	1	20	440	2,350	3
Venezuela	--	--	--	--	--	2	--	2	21	--
Zimbabwe	20	--	--	--	--	--	--	20	416	--
Other	--	8	--	(5)	59	7	66	140	2,100	10
Total	10,000	1,030	1,180	(5)	570	744	248	13,800	107,000	48
2003: January-September	78,700	7,080	10,700	70	3,620	4,260	2,930	107,000	XX	562
2002: January-September	78,600	5,170	9,580	1,180	2,390	4,360	2,140	103,000	XX	653

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemicals category includes chlorides (25%); sulfates (22%); other salts (22%); supported catalysts (22%); and oxide, sesquioxide, and hydroxide (65%).

[3]Excludes wrought nickel.

[4]May include revisions for prior months.

[5]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY[1]

(Metric tons, nickel content)[2]

Period and country of destination	Cathodes pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total[3]	Total year to date	Wrought nickel
2002:										
September	164	122	2	55	718	1,660	153	2,880	36,300	249
October	113	99	8	34	1,010	1,840	167	3,270	39,600	221
November	64	95	8	6	830	1,470	184	2,650	42,300	181
December	75	65	7	3	983	2,080	423	3,630	45,900	175
January-December	1,740	1,480	46	685	13,700	25,700	2,580	45,900	XX	2,570
2003:										
January	92	58	10	11	853	3,060	267	4,350	4,350	586
February	24	84	13	7	948	5,050	261	6,380	10,700	462
March	46	113	5	13	770	5,150	243	6,340	17,100	629
April	78	86	8	19	894	2,880	466	4,430	21,500	149
May	30	59	11	11	836	2,380	379	3,710	25,200	147
June	90	47	29	33	516	2,310	276	3,300	28,500	143
July	87	95	27	2	510	3,570	393	4,690	33,200	148
August	56	77	37	1	792	3,040	301	4,310	37,500	162
September:										
Australia	--	(4)	--	--	--	--	--	(4)	51	(4)
Belgium	--	14	--	--	--	--	(4)	14	247	--
Canada	2	36	--	46	549	176	118	927	8,590	7
China	--	(4)	8	--	9	542	2	561	4,480	2
Germany	--	9	--	(4)	7	8	4	28	300	--
India	--	(4)	(4)	--	14	90	--	104	784	(4)
Italy	--	(4)	--	--	--	(4)	--	(4)	495	--
Japan	21	8	--	5	23	28	13	98	1,170	6
Korea, Republic of	--	6	--	--	--	725	23	754	5,120	1
Mexico	63	1	--	--	--	15	2	81	530	19
Netherlands	--	4	--	(4)	--	7	--	11	1,240	2
South Africa	--	--	--	(4)	9	2	2	13	78	--
Spain	--	--	--	--	--	--	--	--	2,580	--
Sweden	--	--	--	--	31	3	(4)	34	350	--
Taiwan	1	(4)	--	--	--	681	13	695	8,180	(4)
United Kingdom	1	(4)	10	--	61	1	4	77	975	1
Other	19	28	--	--	4	70	42	163	5,890	110
Total	107	106	18	51	707	2,350	223	3,560	41,100	148
2003: January-September	609	724	158	147	6,830	29,800	2,810	41,100	XX	2,570
2002: January-September	1,490	1,220	23	642	10,900	20,300	1,800	36,300	XX	1,990

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemicals category includes chlorides (25%); sulfates (22%); other salts (22%); supported catalysts (22%); and oxide, sesquioxide, and hydroxide (65%).

[3]Excludes wrought nickel.

[4]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY[1]

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2002:									
September	64	153	412	207	35	243	131	1,250	14,500
October	180	150	400	212	28	106	117	1,190	15,700
November	231	279	324	348	28	194	149	1,550	17,200
December	170	192	510	353	21	147	153	1,550	18,800
January-December	2,540	2,640	5,230	3,520	196	2,850	1,810	18,800	XX
2003:									
January	54	252	427	332	(2)	133	91	1,290	1,290
February	167	158	356	264	11	93	140	1,190	2,480
March	129	209	600	308	(2)	148	163	1,560	4,040
April	184	245	697	316	6	204	266	1,920	5,950
May	181	204	504	328	7	206	195	1,630	7,580
June	150	156	579	244	35	292	102	1,560	9,140
July	130	266	554	277	30	305	168	1,730	10,900
August	151	78	469	319	32	322	154	1,530	12,400
September:									
Australia	33	--	--	--	--	--	(2)	33	472
Belgium	--	--	(2)	--	--	--	(2)	(2)	150
Canada	(2)	--	25	--	--	7	3	35	184
China	--	--	(2)	--	--	--	8	8	239
France	--	2	37	1	--	7	2	49	1,100
Germany	(2)	63	160	134	10	83	3	453	4,790
Italy	--	80	11	--	--	--	1	92	796
Japan	--	--	4	--	--	10	1	15	604
Mexico	--	--	--	--	--	--	46	46	623
Netherlands	--	20	8	--	--	--	12	40	169
South Africa	--	--	--	--	--	--	--	--	234
Sweden	--	44	146	9	--	2	--	201	1,960
United Kingdom	15	26	5	67	--	6	3	122	1,810
Other	--	4	10	--	(2)	1	16	30	388
Total	48	239	406	211	10	116	95	1,120	13,500
2003: January-September	1,190	1,810	4,590	2,600	131	1,820	1,370	13,500	XX
2002: January-September	1,960	2,010	4,000	2,600	118	2,410	1,390	14,500	XX

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY[1]

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2002:									
September	788	568	174	733	4	133	333	2,730	22,900
October	290	507	146	717	3	187	320	2,170	25,100
November	739	418	174	546	10	147	295	2,330	27,400
December	415	316	78	302	14	115	426	1,660	29,100
January-December	8,720	6,020	1,520	6,590	169	1,770	4,290	29,100	XX
2003:									
January	729	375	138	236	12	231	192	1,910	1,910
February	1,160	419	93	215	38	168	374	2,460	4,380
March	226	615	113	399	214	150	307	2,020	6,400
April	600	743	158	315	14	182	292	2,300	8,700
May	857	950	82	295	44	184	256	2,670	11,400
June	180	980	94	521	21	163	280	2,240	13,600
July	750	553	72	223	25	263	216	2,100	15,700
August	708	707	112	344	30	228	201	2,330	18,000
September:									
Australia	(2)	--	--	--	--	1	1	2	35
Belgium	(2)	39	(2)	(2)	--	2	1	42	814
Canada	7	42	22	40	10	46	68	235	2,060
France	180	46	(2)	24	(2)	(2)	(2)	250	1,940
Germany	295	15	9	22	(2)	1	1	343	4,320
India	1	7	1	3	(2)	(2)	(2)	12	118
Ireland	--	--	2	(2)	--	1	(2)	3	16
Italy	(2)	78	(2)	3	--	(2)	1	82	393
Japan	57	41	7	19	24	1	4	153	1,020
Korea, Republic of	6	10	1	11	(2)	2	5	35	303
Mexico	1	14	19	18	1	64	136	253	2,430
Netherlands	--	1	--	1	--	1	(2)	3	122
Singapore	--	5	(2)	1	1	(2)	(2)	7	105
Spain	1	(2)	2	1	(2)	--	1	5	114
Sweden	--	--	(2)	4	--	--	1	5	54
Switzerland	26	5	4	5	--	2	--	42	402
Taiwan	2	10	--	9	(2)	2	4	27	307
United Kingdom	16	227	4	67	(2)	4	4	322	3,390
Other	5	83	9	53	16	13	44	223	2,130
Total	597	623	80	281	52	140	271	2,040	20,100
2003: January-September	5,800	5,970	941	2,830	451	1,710	2,390	20,100	XX
2002: January-September	7,270	4,780	1,120	5,020	141	1,320	3,250	22,900	XX

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
October 2003:		
Stainless and heat resisting steels	65	35
Alloy steels	99	1
Superalloys	89	11
Copper-nickel alloys	95	5
Other nickel-base alloys	100	(1)

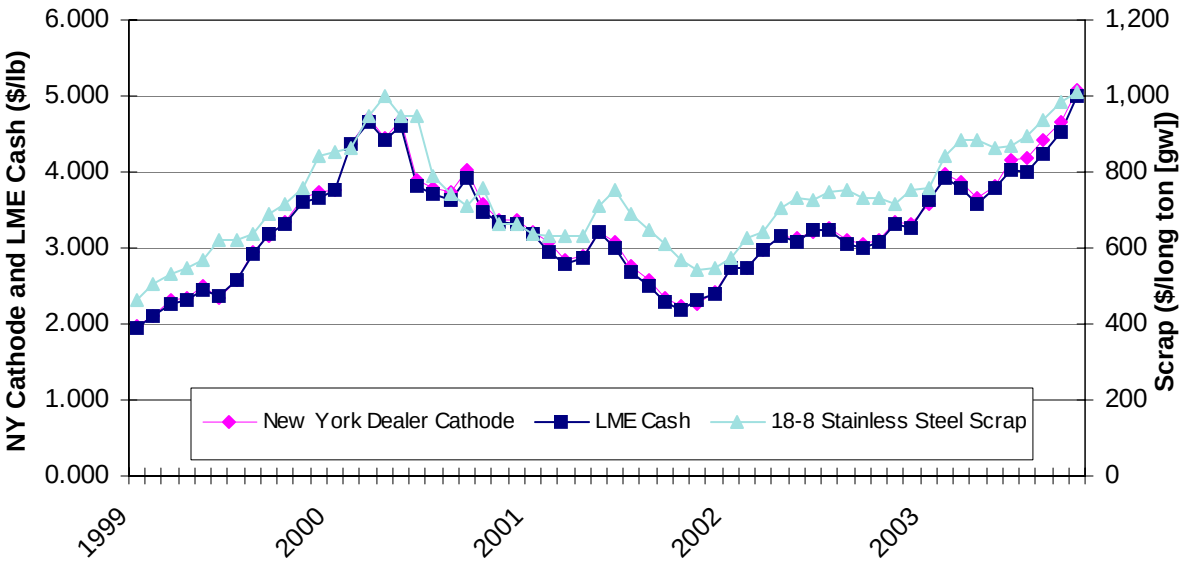
[1]Less than 1/2 unit.

TABLE 9
NICKEL PRICES

	Platts Metals Week				American Metal Market,
Date	Cathode NY Dealer $/lb.	LME Cash mean [1] $/t	LME Cash mean [1] $/lb.	18/8 Stainless steel scrap Free market $/long ton (gw)	18/8 Stainless steel scrap Pittsburgh $/long ton (gw)
2002:					
Average for month of:					
November	3.349	7,313.929	3.318	XX	716
December	3.308	7,193.158	3.263	XX	755
Yearly average	3.095	6,771.751	3.072	XX	703
2003:					
Average for week ending:					
October 3	4.81-4.98	10,328.000	4.685	980-990	980-990
October 10	4.99-5.16	10,758.500	4.880	1,000-1,045	1,015-1,025
October 17	5.14-5.38	11,123.500	5.046	1,045-1,070 r	1,015-1,025
October 24	5.16-5.39	11,218.500	5.089	1,045-1,075	1,015-1,025
October 31	5.23-5.59	11,454.500	5.196	1,050-1,105 r	1,015-1,025
November 7	5.59-5.69	11,987.000	5.437	1,100-1,160	1,150-1,170
November 14	5.64-5.81	12,170.000	5.520	1,150-1,170	1,150-1,170
November 21	5.52-5.85	12,093.500	5.486	1,150-1,170	1,150-1,170
November 28	5.52-5.73	12,095.500	5.486	1,150-1,170	1,150-1,170
Average for month of:					
January	3.580	8,026.020	3.641	XX	757
February	3.978	8,623.000	3.911	840	840
March	3.865	8,378.810	3.801	886	885
April	3.655	7,910.125	3.588	885	885
May	3.826	8,330.625	3.779	839	861
June	4.155	8,874.762	4.026	874	867
July	4.178	8,797.391	3.990	893	897
August	4.418	9,351.375	4.242	918	935
September	4.668	9,965.341	4.520	978	985
October	5.066	11,047.174	5.011	1,041 r	1,013
November	5.568	12,086.500	5.482	1,153	1,160

[r]Revised. XX Not applicable.
[1]Mean of the cash buyer price and the cash seller & settlement price.

1999-2003 AVERAGE MONTHLY PRICES
(Derived from Metals Week and American Metal Market quotations)



1999-2003 STOCKS